

The Beer Drinking Theme in Tacitus' Germania

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Abstract While there are a number of archaeological references to brewing of beer as early as 1200 BC, there are besides picturing drinking-horns, no references to early drinking customs. Fortunately, significant similarities among the Germanic tribes have been noted as early as about 100 AC which suggest commonality in drinking as a formal ritual activity. Tacitus' writing about beer drinking can be tested against the hypothesis of Charles Choi (2010) that 'Beer Lubricated the Rise of Civilization'. It will be made evident that state attractions can be established by applying the procedures, outlined in the manuals of Perspective Text Analysis. However, the presentation of the obtained results through energy landscapes requires a non-resistant attitude towards the chosen [AaO] approach. In mirroring the orientation [O] in the intention [A], a rigorous examination of their roots has been made possible. Conciliations at Germanic Symbol relate to the discovery of **Retrial** as the basic root of intention and **Participation** as the complementary root of orientation. By coupling Latin graphemes strings at the micro level with the componential [A] and [O] strands at the macro level, it has become evident that the essence of themes and motifs must be produced from the inside out.

From an etymological point of view, the word *bier* is of West-Germanic origin and may have been formed with the Latin word *bibere*, which means drinking. All other related Germanic constructions take their departure in the Middle High German *bier* or its Old German version *bior*. As Tacitus points out, the drinking ritual seems to play an important role in the Germanic societies. Thus, the function of beer as a social lubricate can be studied with Symbol as its suitable context. Tacitus' writing on the custom at Symbol, as it appears in Chapter 22, is reproduced as follows.

»Statim e somno, quem plerumque in diem extrahunt, lavantur, saepius calida, ut apud quos plurimum hiems occupat. Lauti cibum capiunt: separatae singulis sedes et sua cuique mensa. Tum ad negotia nec minus saepe ad convivia procedunt armati. Diem noctemque continuare potando nulli probrum. Crebrae, ut inter vinolentos, rixae raro conviciis, saepius caede et vulneribus transiguntur. Sed et de reconciliandis in vicem inimicis et iungendis adfinitatibus et addiscendis principibus, de pace denique ac bello plerumque in conviviis consultant, tamquam nullo magis tempore aut ad simplices cogitationes pateat animus aut ad magnas incalescat. Gens non astuta nec callida aperit adhuc secreta pectoris licentia ioci; ergo detecta et nuda omnium mens. Postera die retractatur, et salva utriusque temporis ratio est: deliberant, dum fingere nesciunt, constituunt, dum errare non possunt.» Cornelii Taciti (98) de origine et situ Germanorum (or Germaniae) liber," Chap. 22

Evidence of the essentially Germanic nature of this kind of ritual drinking comes from various European archaeological sites (Bauschatz, 1982; Ward, 2001; Wills, 2012) In particular, the Icelanders as well as other Scandinavian tribes and the Anglo-Saxon's of England (Zuring, 2013) have practiced the drinking ritual at Symbol (Old English) or Sumbl (Old Norse). Other Germanic tribes have also practised the drinking rituals at Symbol. Rather than trying to become comprehensive, focussing on the Old North ritual alone will be sufficient in order to trace the way in which the Germanic tribes relate themselves to beer drinking.

Since Tacitus himself is the text producer his thoughts can be discovered and made the foundation of his points of observation. Furthermore, his viewpoints are conceived to be something that exists only through a semantic-free processing of the observer-environment relationship which means his of Germanic Symbol description. Therefore his observations on this custom will be examined with Perspective Text Analysis (PTA). Corresponding manuals are provided in the Appendix. By means of the given instructions, 3D geometric configurations will be produced which are free from semantic interpretations.

The prominent aspect of studying text as bio-physical expression implies that this approach represents a qualitative jump into a new phase in studying text. The present supposition is that the mechanisms that have worked in historical time are producing the complex configuration of the actual Latin text. Thus, to approach Tacitus' points of observation as well as his points of view requires the bookkeeping of subtle attitudinal changes (in the mathematical sense, see Hestenes, 1994, p. 72) and to recover the underlying rotational changes *step-wise and without intervening dissociations and in perfect order* (Baeyer, 1999, 12-14). A further supposition concerns the expression of the underlying forces which are expected to generate topology-changing transitions by mirroring the Objective in the Agent. Whenever these processes require the integration of a variable into a composite, rotational transformations have to perform the transition from the expression of individual strings to the evolution of more or less long-winded strands. By writing his viewpoints into text, observing and measuring can be patterned as shown in Table A1 of the Appendix and accounted for with precision.

Bio-kinetic Energy Investment

An important result of the [AaO] formula appears in the establishment of the helical properties of its ring-configurations. Thus, the crucial import of local string-grapheme interaction can be demonstrated only through a rotation-governed processing of specific changes in angular articulation. Since evolutionary changes appear in the string-grapheme composites, i.e., with each other integrated strings of graphemes, this kind of integration generates layered composites as the units of textual evolution. Calculating the depth of a ring means calculating the magnitude of $(R=W=\Phi)$, i.e., (Φ) minus the roots $(\frac{1}{2}\theta, \frac{1}{2}\phi)$ of the magnitudes in the string-rotation of the moving $(\beta(\theta))$ and $(\alpha(\phi))$ variables. This measure generates the ground for transformation of the produced sequences and composites. In computing the [AaO] ring-structure, the involved rotations are carried out in the following way:

The winding magnitude of a strand is taken as basis (1/1). Every in-folding of a segment of this strand is treated as an expression of the variable's vibrating property. Since it is an expression of the strand's contextual circumstances, its surface-oriented developing *curling* plays a complementary role, which is accounted for by adding the fraction of (1/10) as *curling value* to the basic *winding value* of the strand. Thereafter the contextual fitness value is added as a *valve fraction* of (1/100) of the winding-value, but multiplied with the *number of in-folding graphemes*. This procedure is reiterated for every segment of a strand. If the strand is growing, this lowers its short-distance sensitivity and thus is increasing its in-folding capacity.

As shown in Table A1 of the Appendix, this measure allows for the numerical representation of rotational distance. It follows that intention and orientation is mediated through an exchange of strand properties by means of flow-fields. Since flow-fields themselves are made up of vibrating as well as non-vibrating strand segments, the directional turn of a winding strand must take into account all deviations from surface uniformity. In conclusion, the dynamics in a ring structure resides not in the physical reality of a segment, but in the metaphysical fraction or share it has in the bio-kinetic energy transformation of string-

grapheme compounds and their exchange with flow-fields. In addition, textual pattern movements must be related with exactness to proper biological time scales. The model followed is pictured in Figure 1.

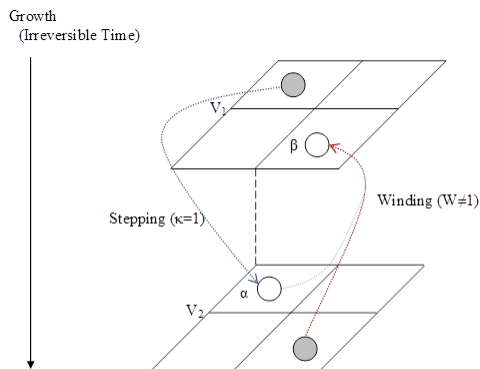


Figure 1 *Coupling and Entangling of States*

In capturing a change in the state of a string through the vibrating (Δ_s) properties of a grapheme, localising the strings on opposite dots, according to their properties, shows that time-dependent shifts are specifying the associated strings reciprocally. In separating the dots in the first plane through the energy (V_1)-function, two types of dots can be identified: A filled dot, which indicates a non-relaxed state and a non-filled dot, which implies a relaxed state. As a consequence, a string must revolve around the energy component (v). Twisting and winding strings in a composition of a sequence are constitutive of the helical configuration of a composite. The expression of a string (Δ_s) relates to non-linear and time-dependent change in energy conservation, meanwhile winding means the production of time-dependent and non-linear string-grapheme compounds as well as layered composites that can be used in an operational definition of the concepts of *speed* and *acceleration*. Since flow-fields must show definite winding ($W>1$) directions (Winfree, 1980, pp. 14, 244), it can be stated that also flow-fields have helical properties. The proof of the hypothesis is independent of parameter fitting.

In a straightforward application of these concepts, it is possible to derive the dynamical properties of a string-grapheme compound from the recombination spectrum (Δ_s). Accounting for the spectrum is a function of string movements. Since measured accelerations are related to timing, i.e., channelling through the (\emptyset_α) and (\emptyset_β) dummies of the involved flow-fields, acceleration is identifiable with the expression of the gradient dynamics of a flow-field, which is characterised by repeated co-valence and joint causation. Finally, it may be noted that the [AaO] ring, used in the process, must be treated as the most primitive synthesising mechanism (for a thorough discussion, see Hardison, 1999).

The following Flow Chart is based on the text processing, shown in Table A1 of the Appendix. Since the given text appears to have attracted many, it is made the source for an attempt to reveal the kind of ideas that are covered by the textual surface. This is especially challenging when the original has been produced in historical time. Furthermore, finding a proper solution is dependent on the way in which perceived relations have been processed and coordinated in chaining together textual elements.

Flow Chart

Statim e somno, quem plerumque

 $\phi=8.2044$ *Channelling (...)* $\phi=2.635668$

, ut aput quos hiems

 $\phi=5.2124$

Lauti cibum

 $\phi=4.082$

Tun ad negotia nec minus saepe ad convivia

 $\phi=10.1265$ *Channelling (...)* $\phi=2.317784$

Diem noctemque

 $\phi=4.1762$ *Channelling (...)* $\phi=3.456425$ Crebrae, ut inter vionlentos, rixae raro conviciis
seaepius caede et vulneribus $\phi=9.3258$

Sed et de

 $\phi=5.3019$ et *Channelling (...)* $\phi=3.574214$ *Channelling (...)* $\phi=1.433203$ *Repetition* $\phi=1.433203$ *Channelling (...)* $\phi= -1.70873$ *Repetition* $\phi= -1.70873$ *Repetition* $\phi= -1.70873$ *Channelling (...)* $\phi= -4.05394$

Gens non astutanec callida

 $\phi= 5.4322$

; ergo

 $\phi= 3.925$

Postera die

 $\phi= 4.082$

, et salva utriusque temoris ratio

 $\phi= 5.9660$ *Channelling (...)* $\phi=1.04286$

dum

 $\phi=3.5482$ *Channelling (...)* $\phi=3.6116333$ *Channelling (...)* $\phi=1.271125$

dum

 $\phi=3.5482$

non

 $\phi=3.5482$

Time

 α_1 α_2 α_3 α_4 α_5 α_6 α_7 α_8 α_9 α_{10} α_{11} α_{12} α_{13} α_{14} α_{15} α_{16} α_{17} α_{18} α_{19} α_{20} α_{21} α_{22} α_{23} α_{24} α_{25} α_{26} α_{27} β_1 β_2 β_3 β_4 β_5 β_6 β_7 β_8 β_9 β_{10} β_{11} β_{12} β_{13} β_{14} β_{15} β_{16} β_{17} β_{18} β_{19} β_{20} β_{21} β_{22} β_{23} β_{24} β_{25} β_{26} β_{27}

extrahunt (...)

 $\theta=-0.99398$

lavantur saepius calida

 $\theta=4.7414$

occupat (Y).

 $\theta=0.8792$

capiunt (: separate singulis sedes et sua)

 $\theta=7.7558$

procedunt (...)

 $\theta=0.535083$

armati (Y).

 $\theta=0.8478$

continuare (...)

 $\theta=-0.2176$

potado nulli probrum.

 $\theta=4.9926$

transiguntur (Y).

 $\theta=1.0362$

reconcilian in vicem inimicis

 $\theta=6.5016$

iungendis affinitatibus

 $\theta=4.4274$

ascisendis principbus de pace denique

ac bello plerumque

 $\theta=7.5046$

in conviviis

 $\theta=5.0697$

constutant tamquam nullo magis tempore

 $\theta=6.123$

aut ad simplices cogitatione

 $\theta=6.4242$

pateat animus aut ad magnas

 $\theta=5.4322$

incalescat (Y) .

 $\theta=0.942$

aperit adhuc secreta pectoris licentia ioco

 $\theta=6.1858$

detecta et nuda omnium mens.

 $\theta=5.7776$

retractatur (...)

 $\theta=-33.8288$

est (...)

 $\theta=-28.9206$

deliberant (...)

 $\theta=-22.0362$

fingere (...)

 $\theta=-17.6442$

nesciunt (...)

 $\theta=-10.8806$

constituunt (...)

 $\theta=-1.76301$

errare (...)

 $\theta=3.559157$

possunt (Y)

 $\theta=0.8792$

The coding protocol of the Flow Chart is showing that the governing (α) variable is repeated whenever two or more (β) variables appear within the range of a particular action (=verb). The protocol makes evident that both components are performing twofold dependent functional controls over angular articulation and management of the produced movement patterns.

Within the conceived set of specifying conditions, repetition implies reusing the active agent. Thus, a special character of the coding appears through the repetition of particular (α) variables with the effect of an unchanged winding (=rotation) factor. In contrast, channelling (...) through reiteration specifies the degree to which a particular variable is reversibly addressed during the course and thus is changing the winding factor. For example, it is shown how (α_1) is changing at (α_2). The same kind of reiteration appears when the value of (α_5) is changing at the position of (α_6), while (α_{14}) is repeated in the positions of (α_{15}) and (α_{16}). In principle, channelling appears when a dummy is supplemented with the shadow of the immediately preceding agent variable (α_1) that is the ROT of (α_1). When (α_{11}) and (α_{12}), are involving (α_{10}) the shadow is finally fading into position (α_{12}) and thus become even more shadow-like. Shadowing at (α_{17}) may also mean a combination of repetition and channelling which is competing with the material expressions at (α_{10}).

Since the observed text building behaviour is coupled with the emergence of steps, a dynamic coupling of steps with shape is simultaneously inferred as foundation for the development of a Potential Energy Surface (PES). The waves, appearing in the PES graphs will show that invested energy potentials become similar to waving fabrics. Hence the notion of a *dynamic movement texture* seems to be a fitting conceptualization of its form or shape. The most obvious capacity of a shape concerns the reflection of fluidity.

A study of the intentional flow dynamics allows a comparison between positions where the asymmetries become particularly pronounced. Table A2 of the Appendix gives a summary and shows that the corresponding places of textual articulation appear in the first case of interval 1. Here the rotation value is near the maximum and can be mirrored as a strong and rapidly inflating wave crest in Figure 2.

Resonance in the Beer Drinking Theme

The difference between expansion and extension can be expressed experimentally in two distinct ways. One way concerns the repetition of a grapheme configuration, which leaves the winding factor unchanged. The other refers to the degree of channelling, which specifies the degree to which a particular configuration is reversibly addressed during the course of writing and thus is changing the winding factor. Whenever the evolutionary process requires the integration of grapheme into composites, rotational translations perform the transition from the expression of strings to the evolution of an in-folded strand.

With the introduced novelty of imaging the dynamics in a behavioural approach to text building, the stepping function of Figure 1 can be bound to the manifestation of differences in intention and orientation. Additionally, the pointer function of the prepositions is rendering a certain focus on the direction in the articulation. With the produced flow-fields as intermediaries, layered composites provide the ground for the geometric shapes of a text space as shown by the graphs of Figure 2 and 3 below.

Finally, if the bonding of α - and β -variables in an expression would appear to be dependent only on a linear relationship, its reconstructed text space would appear stationary. However, the strict dependency in the bonding is governing a displacement and refraction mechanism whose work is preventing the production of stationary results.

Agent

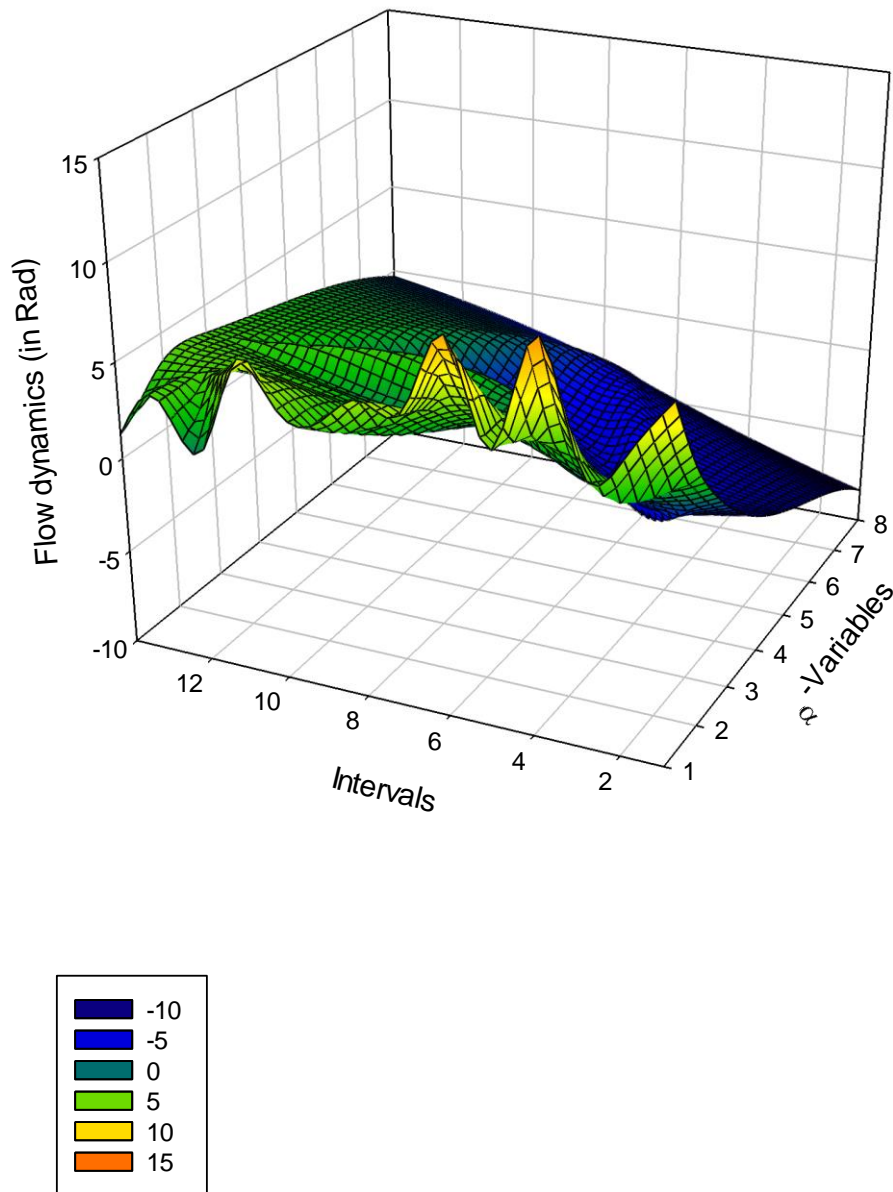


Figure 2 *Fluidity in the Agent Component*

Since it has been possible to express the overall dynamics in a sequence of strings as distance from the thermodynamic equilibrium it can also be shown that cyclic phase transitions are determining the helical properties of their strands. These translations proceed over the sequencing space of the locally determined string production.

Characteristic of the speed in the Agent component is its epigrammatic terseness and vividness. Three examples are specifying verb-less phrases at the beginning of the corresponding sentences. A wave crest, accomplished by the first explicitly expressed agent variable, is made up of specifications before the verb (*Statim e somno, quem plerumque in diem*). Its magnitude is ($\approx +8.20$). Since materialised strings appear at the textual level as

graphemes, they mark certain character properties. This means that the magnitude, related to the Latin grapheme composition, provides a certain peak in the resonance spectrum. After the in-folding has been performed another peak appears in interval four with case 1 which implies the maximum rotation value ($\approx +10.13$). Hence, the agent variable (*Tum ad negotia nec minus saepe ad convivia*) is very prominent. Finally, the shape gets further undulating kick in interval 11 with case 1 and the rotation value ($\approx +5.97$), which means a boost by the string sequence (, *et salva utriusque temporis ratio*). Thereafter, rotating is producing more evenly appearing results. Thus, flows as intermediaries generate grapheme composites which provide the ground for the establishment of asymmetries.

Slower flows appear towards the middle and reveal a hole (\emptyset) in the texture through which strings are fading. A closer look reveals that case 3 in interval seven and before the verb form (*et \emptyset ascisendis*) constitutes a lower fold that is visible with ($\approx +1.43$). Further, in interval 7 is the flow in case 5 dependent on the agent dummy (\emptyset). Since case 1 (*Sed et de*) is repeated by sliding over two borders, the root has been extracted twice and resulted in the rotation value (≈ -1.71). The deepest tip appears in the seventh interval in case eight and is the result of further fading away of the agent and thus deeper into the ongoing conceptualization. Before the verb form (*\emptyset incalescat*), it marks a rotation value (≈ -4.05). Whenever the translation process requires the integration of string sequences into composites, rotational changes perform the transition from the expression of strings to the evolution of involutes.

The other kind of produced involutes relates to the angular articulations which have produced the PES graph of Figure 3. This graph is a function of the textual elements that perform at the right-hand side of the AaO-formula. By imaging the idea of fluidity, inherent Symbol (sum-alu) beer-gathering or beer-sharing (Bauschatz, 1982, p. 135), the horn-fluidity relationship becomes distinct through the moulded horn which can be detected in Figure 3. Moreover the 'Horn' appears as attached to the 'Table'.

In the discussion of Bauschatz (1982, p. 9), it becomes clear that *the generic term picked for this drink is öl* ('beer'). The Horn-Table union and the powerful alcoholic drinking are related to the flow which puts forward the icon of a drinking horn and the Table-Bench arrangement. The horn may be seen to be bound to the bench, which appears as a plate at the right-hand side. Together they make up the significance of the Symbol, namely togetherness in drinking which, moreover, is ritually repeated. This feature is captured by the depth of the generated horn. The waves, are showing that the invested energy potential become similar to a waving fabric. Even here, the notion of **dynamic movement texture** seems to be a fitting term for its form or shape. Clearly, the Latin text carries the notion of sitting down for mutual positioning with a concrete purpose in mind and within a friendly and unconstraint context.

From Table 1 it becomes clear that people at the bench are forming intimate and essential relationships.

Table 1
Repeated Textual Movements

<i>X</i>	<i>Y</i>	<i>Var</i>	<i>Rad</i>	<i>String</i>
1	1	2	-33.83	retractatur (...)
1	11	21	-28.92	est (...)
1	12	22	-22.4	deliberant (...)
1	13	23	-17.64	fingere (...)
2	13	24	-1.88	nesciunt (...)
1	14	25	-1.76	constituunt (...)

Since drinking is not the primary activity at Symbol, the last two activities of Table 1 point towards the fact that intoxication with beer has no negative effect on consciousness and hence, does not interfere with togetherness, speech making and negotiated settlements.

Objective

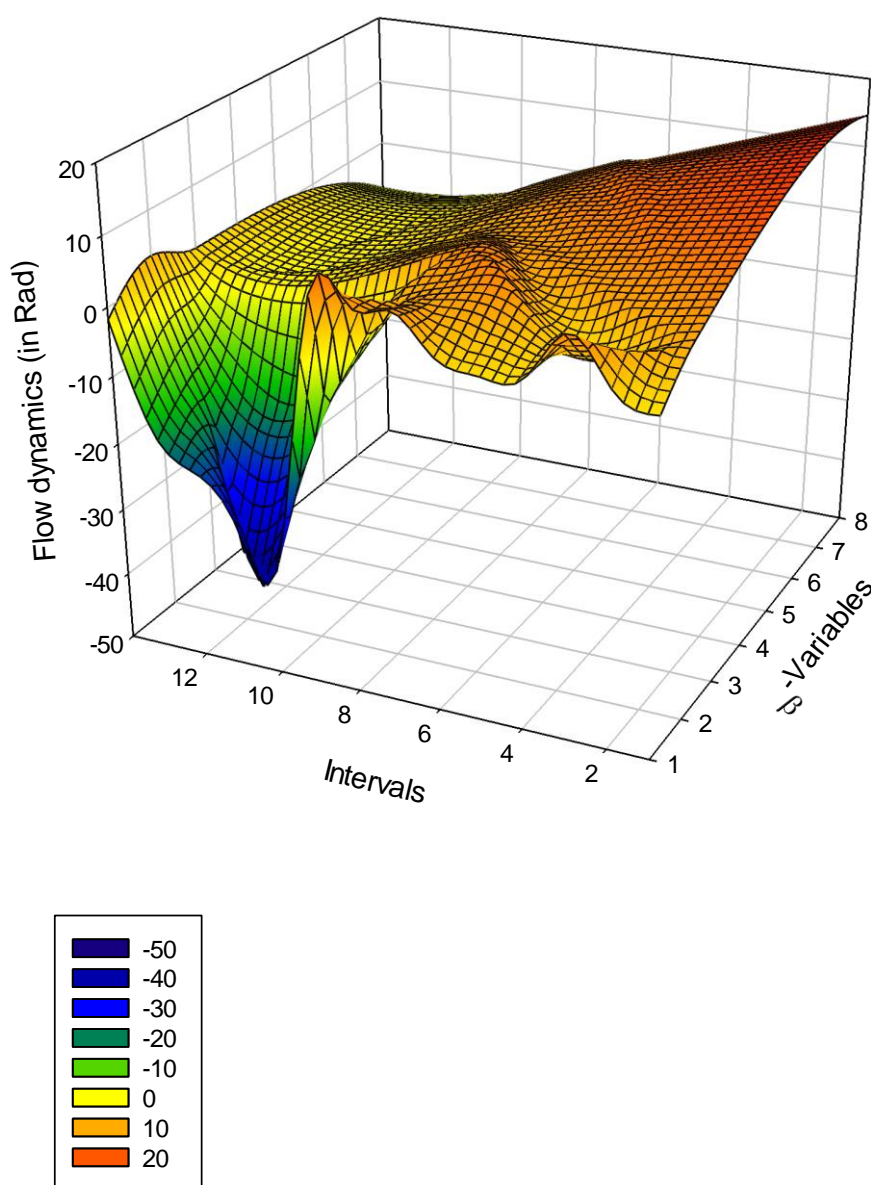


Figure 3 *Fluidity in the Objective Component*

Tacitus as text producer gives expression to his mode of picking up information on the drinking ritual of the Germanic people. To the degree that a sensible verbal reaction to the fading of the observed facts can be processed, conceptual coherence can be penetrated without direct access to the context. Channelling (...) through reiteration specifies the degree to which a particular variable is reversibly addressed during the course and thus is changing the winding factor. Table A3 of the Appendix supplies further information on participating in

a Symbol event at which serious business as well as war and peace may be discussed. Drinking and speaking are pointing to joint activities which are integrated by the componential the channelling procedures.

The Orientation Space

The coordinates, made up by the strain- and shear-dimensions refer to the underlying mesh system of the dependency graph, shown in Figure 4.

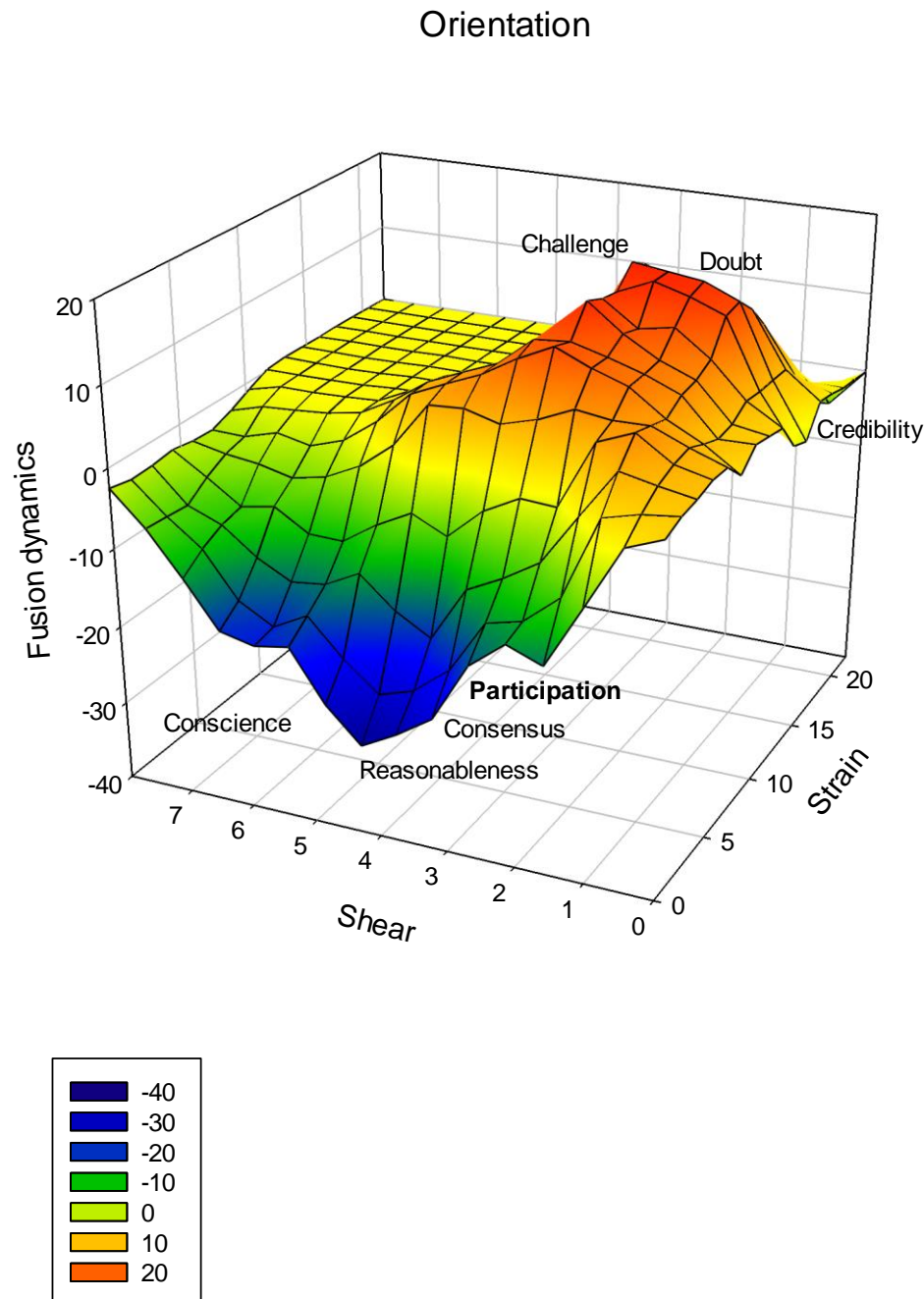


Figure 4 *Fusion Dynamics in the Objective Component*

In contrast to the X-axis of the fluidity spaces, the X-axis of the fusion spaces is responding to the *Strain*, while the Y-axis, instead of carrying the intervals, is now specifying *Shear*. Furthermore, the Z-axis is, instead of carrying the flow dynamics, related to the fusion

dynamics. The theoretical significance of applying invariant mesh systems to the fusion of dynamic measurements relates to the way in which the concentration of information within a space has its impact on the evolving fusion dynamics.

Since the dynamics in the folding is manifested in continuous and discontinuous trajectories at the macro-level, both have constraining effects. Based on the landscape established in Figure 4, it becomes possible to capture the point of destination through the final state attractor whose coupling configuration consists of the following dependency relation:

T_{31} *Challenge* (strain-9, shear-4), magnitude of ($\approx +84.77$)

T_4 *Reasonableness* (strain-2, shear-3), magnitude of (≈ -113.31)

T_{41} **Participation** (strain-3, shear-3), magnitude of (≈ -28.54)

When linked to the distance in the folded space, the fusion dynamics gives expression to a very characteristic landscape of mountains and valleys. The coupling configuration implies a transformation where (T_4) is acting on (T_{31}). Once the trajectories of the participating micro structures have moved the fusion process into the realm of the global state attractor (T_{41}), the transforming attractor (T_4) as well as the final attractor (T_{41}) is shown to lie below sea level.

It is no accident that the root of the orientation dimension has manifested itself in **Participation** since at Symbol, it is foremost the social event that is of interest. It consists of a number of people which are gathering around the bench and bound together by their words. Thus the Symbol cannot be a one-man show, i.e., held in isolation or in silence. *Words are spoken over the horn before the drinking* (Wills, 2012, p. 3).

The pattern in the linkage between the participants is further extended to great actions, previously established through speech making. Hence a deed reworded at Symbol becomes a reality account. The participant who serves this function of creating a *saga* appears in the role of the spokesman and consequently as a challenger of the scope of the presented actions.

... in such activity, the power of all other actions is brought to bear upon the ritual moment and fixes it within the ever-evolving interrelation of all present actions with the past (Bauschatz, 1982, p. 136).

It is clear from the index of the attractor that *Challenge* (T_{31}) has become materialized in a microstructure that follows with a certain distance the impact of *Reasonableness* (T_4). The boasts made by the challenger or guest *on behalf* of the host thus saving the host the embarrassment of entering into or losing an argument* is to take on the task of contesting (*author's change of behave into behalf). Wills (2012, p. 8) underlines his statement with the observation that a person taking on the role of a challenger *should be thick skinned and knowledgeable of lore and the group's history and politics*.

The participants, sitting orderly at the bench are celebrating *Consensus* which implies the attractor (T_{38}). The Symbol as context of a social event is fostering togetherness. This attraction is deep seated and appears below sea level at (strain-2, shear-5) with a magnitude of (≈ -79.48). The con-sense of spring water with powerful waters appears through its relationship to the event (Bauschatz, 1982, p. 134). Hence, the power of fluidity is felt in depth.

In the analysis, the attractor T_{36} carries *Conscience* (strain-2, shear-6) with a magnitude of (≈ -5.56) and has emerged on the left-hand side of the deep valley and thus is partaking in the evolution of *Consensus* (T_{38}). Therefore, in order to generate a communal mood, the participants may enter altered states of togetherness through chants and songs. In fact, the narrative of Tacitus provides a way of accessing Symbol not merely as myth but as

reality, lived on the basis of the underlying operations that are binding together the participants with present and past.

Conscience at (T_{36}) implies that the Germanic Symbol (Feast) seems to have survived as an expression for the power of the past (story telling) on the present. In this role it is the result of an attempt to comprehend the core of Germanic culture. On the other hand the landscape has also a marked plane surface attached to a sharply rising mountain. Integrated in the solid mountain massif is growing acuity which is reflected through the following state attractions:

T_{17} *Doubt* (strain-21, shear-1), magnitude of ($\approx +82.63$)

T_3 *Credibility* (strain-9, shear-5), magnitude of ($\approx +2.14$)

T_{31} *Challenge* (strain-9, shear-4), magnitude of ($\approx +84.77$)

Again, appearing late on the transformation path, the attractor (T_{17}) carries a magnitude of ($\approx +82.63$) and is extremely challenging. By asking for facts, shifts in awareness are setting the stage at Symbol. By questioning facts, the transforming impact of (T_3), however slight, is underpinning a need for assurance about the real happening of an event. In this sense, the spoken words become the locus of reality and reality within history. For the development at the Symbol, questioning the *Credibility* (T_3) appears with a magnitude of ($\approx +2.14$). As the result of previous states of grace, the attractor is a natural part in the practice of conscience. The carrying state attractor may point towards some indications to criticism.

Thus the named state relation appears to work against simplistic conceptions of what may be implied by the robustness in an inquiry. The mutual dependency between the last three termini has become specified through their new neighbourhood relations. Through the causal relationship between termini and the underlying structure, individual specificity makes evident that Tacitus is contributing with uniqueness in the reported observations and in his way of grasping the centrality of the Symbol as a specifically Germanic phenomenon.

Table A3 in the Appendix gives a complete account of the folding into mono-layered and multi-layered composites. The derived names have empirical value, because the derivation regards a configuration of composites as relations, which are mutually dependent. Furthermore, as illustrated with the discussion of Figure 4, a new kind of conservation is generating meaning. Differences in meaning are producing concentrations that are influencing the development of folds. Resulting from differences in the dynamics, certain energy concentrations are influencing the folding in a particular region. However, to catch the fundamental implications of the resulting information synthesis requires that the underlying order variables are producing conceptually valid spaces.

The Intention Space

From the intention point of view, the Agent component in the following graph representation is specifying the profile of the intention dimension. Searching for novel concepts concerning the import of intention for the observation of the Symbol tradition requires a unique way of varying and integrating the values of the Agent component. Table A4 in the Appendix builds on the cooperative interaction of the mesh systems of the Agent and Objective Component respectively which provide the complete results of the fusion process. In order to fit the particular configuration of attractors the same number of folding lines has been selected for the labelling of the path. The invariants of intention have been extracted according to Table A5. Once more, the highest mountain represents the slowest path. Hence, more climbing is required and involves a higher barrier for the consumption of free energy. The lower mountain massif at the right-hand side implies faster folding and consequently lower barriers.

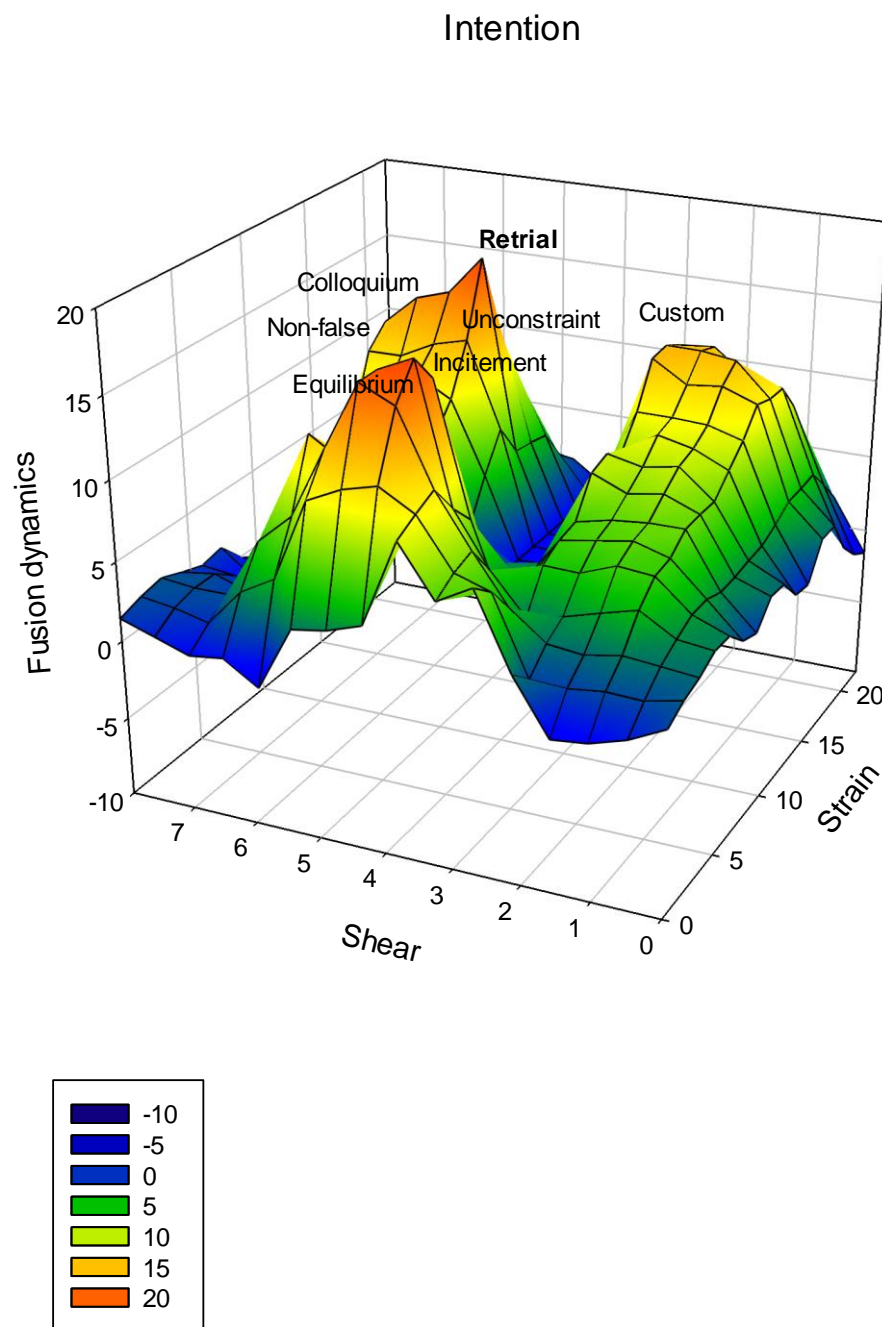


Figure 5 *Fusion Dynamics in the Agent Component*

The final or global state attractor (T_{41}) at (strain-2, shear-4) carries a magnitude of ($\approx +88.7$) and is a source for **Retrial** or restoring grace and can be related to the presence of criteria for judging if and to what degree one's conduct or deal was satisfactory for all involved parties. Hence, **Retrial** means that doubts may have occurred and may have required that possible faults become unmasked in the arrangement. When measured against the energy invested in the established state attractor (T_4), position (strain-3, shear-5) and a magnitude of ($\approx +78.75$), its descriptor *Equilibrium* signals a lot of courage in order to dismantle false impressions or the disturbing behaviour of a fellow at the *Colloquium* which appears in the position (strain-

5, shear-5). The discovered magnitude of ($\approx +68.62$) indicates that a concentrated effort needs to be made in order to meet proper priorities.

The neighbouring attractor (T_{27}) in the position (strain-15, shear-6) carries the descriptive notion *Unconstraint* which may imply a warm and hospitable atmosphere at the Symbol. The magnitude ($\approx +68.33$) of the attractor at this node is a sizable concentration of energy. Further, the amount marks the importance of keeping good relationship for each other. This, however, requires an open attitude, to admit mistakes and to correct them.

The state attractor (T_{31}) in the position (strain-3, shear-5) and a magnitude of ($\approx +72.4$) signals a pronounced key. Putting stress on *Non-false* means putting stress on the dominance of fair behaviour. *Reasonable* behaviour is expected to contribute to the fact that wrong-doing is prohibited and hence socially unacceptable. Innocent or serious hiding obscure ideas behind socially accepted blinds is not legitimate nor a justifiable case.

The intention to provoke unlawful behaviour or urging someone to behave unlawfully is the source of *Incitement*, i.e., the state attractor (T_{29}) in the position (strain-13, shear-6) which carries the magnitude of ($\approx +69.6$). It may be conceived of as a significant impact regarding the questioning of the decency of a performed speech. In sum, the attractor seems to have emerged on the possibility of fabricated facts or illusive views.

Finally, the state attractor (T_{21}) in the position (strain-21, shear-2) carries a magnitude of ($\approx +62.1$) and concerns the *Custom* of the Germanic people. Hence, noticing Symbol as a traditional and widely accepted way of socializing at occasions where noble man make business contracts, marriage or war and peace. On the agenda is of course an observation that has been confirmed by many contemporary persons and in later times by outsiders. In particular, the custom of drinking from the horn in this kind of ceremonial cases requires faithfulness and may have involved the swearing of oaths in the presence of the assembled.

Discussion

Archaeological knowledge of the Symbol comes foremost from Scandinavian, English and German sources (Ward, 2001, p. 1; Wills, 2012, p. 1). The primary information associated with the horn as drinking vessel implies that the performed rituals link to activities that foster the togetherness of noble men. Another source, based on literature studies, has been provided by Zuring (2013) who has collected a number of literary documents which give accounts on the Germanic drinking ritual, however mainly in the Anglo-Saxon (English) context of the middle ages. The paper provides two perspectives: One is addressing the Christian view, exemplified by Beowulf. The other opposing view connects to the inherent Germanic aspect of fellowship and loyalty. However, concerning this age-old vernacular trend (Martínez, 2010) in the kind of text analysis, performed by Zuring, there is no easy way to get rid of all semantic confusions that might be associated with conclusions drawn from the study of historical works.

For overcoming the impediment of interpretation, the PTA strategy has been applied which allows for the bio-physical study of the intentional properties. Treating an ancient text experimentally, like Tacitus' narration of the events at Symbol, means considering text as self-referential and self-organising system which becomes structured through its own internal driving forces. Hence, the main conclusion to be drawn from the provided analyses is that the Germanic people have focussed on bonding among the participants in which equilibration and mutual obligations were recognised. Thus, the Symbol is the natural context where guests can behave unconstraint and appeased among associates.

The configuration of the termini, presented in the Figures 4 and 5, appears to preserve the long-standing Germanic tradition for organizing form and management of social

meetings. Beer is the main vehicle for conveying cultural values as well as behavioural norms and expectations. The discussion captures the essence of the roots of a social relationship which suspends on equality and participation as well as on strong emphasis of reasonableness, even though Tacitus has been critical of the convention of mixing beer drinking with business making.

References

- Baeyer, H. C., von (1999). Nota bene. From classical chemistry to super-strings, effective notation can shape the very development of a discipline. *The Sciences*, 39, 12-14.
- Bauschatz, P. C. (1982). *The well and Tree: World and time in early Germanic culture*. Amherst, CA, University of Massachusetts Press.
- Choi, C. Q. (2010). Beer Lubricated the Rise of Civilization, Study Suggests. *Live Science*, November 05, 2010 02:35am ET
- Hardison, R. (1999). The evolution of hemoglobin. Studies of the very ancient protein suggests that changes in gene regulation are an important part of the evolutionary story. *American Scientist*, 87, 126-137.
- Hestenes, D. (1994). Invariant body kinematics: I. Saccadic and compensatory eye movements. *Neural Networks*, 7, 65-77.
- Martínez, B. S. (2010). *Translating Tacitus: the reception of Tacitus's works in the vernacular languages of Europe, 16th – 17th centuries*. Pisa: Plus-Pisa University
- Ward, C. L. (2001). Norse drinking traditions (pp. 1-12). *Alexandrian Company Symposium on Food and Festival in the Middle Ages*. (By Medievalists.net – January 16, 211)
- Wills, J. (2012). Symbol: The heathen drinking ritual? *Oðrœrir*, Issue 2. www.academia.edu/2652/Symbol_The_Heathen_Drinking_Ritual
- Zuring, J. M. (2013). *Sobriety and 'symbol'.* *Integrating the Germanic drinking ritual in Anglo-Saxon literature*. Unpublished BA-thesis, English Language and Culture, University of Utrecht, The Netherlands.

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Appendix

Manuals

- Bierschenk, I., & Bierschenk, B. (2011). Perspective Text Analysis: Tutorial to Vertex. *Cognitive Science Research*, 1. Copenhagen University & Lund University.
- Bierschenk, I., & Bierschenk, B. (2013a). Perspektivisk Textanalys (PTA).Handledning till Vertex. *Cognitive Science Research*, 16. Copenhagen University & Lund University.
- Bierschenk, I., & Bierschenk, B. (2013b). Perspektivisk Textanalys (PTA). Manual till Vertex med danskt material. *Cognitive Science Research*, 17. Copenhagen University & Lund University.
- Bierschenk, I., & Bierschenk, B. (2013c). La géométrie du texte. Manuel sur le système PTA/Vertex. *Cognitive Science Research*, 11. Copenhagen University & Lund University.
- Bierschenk, I., & Bierschenk, B. (2014a). Perspektivische Textanalyse: Anweisungen für Vertex. *Cognitive Science Research*, 114. Copenhagen University & Lund University.
- Bierschenk, I., & Bierschenk, B. (2014b). Analisi geometrica di testo. Manuale per il PTA /Vertex. *Cognitive Science Research*, 113. Copenhagen University & Lund University.

Tables

- Table A1** *AaO Coding and Computation of Radians*
- Table A2** *Intervals and Radians of Alpha and Beta Variables*
- Table A3** *Transformation of Beta Variables*
- Table A4** *Transformation of the Alpha Variables*
- Table A5** *Extraction of Termini from the O-mesh*

Table A1*AaO Coding and Computation of Radians*

Codes	Grapheme	Number	Interval	Com	Base	Sum
0	[.]					
0.1	*					
0.1 (30)	Statim	6	1	0.6192		
0.1 (30)	e	1		0.4257		
0.1 (30)	somno	5		0.5805		
0.1 (30)	,	1		0.4257		
0.1 (30)	quem	4		0.5418		
0.1 (30)(60)	plerumque	9		0.7353		
0.1 (30)(60)	in	2		0.4644		
0.1 (30)(60)	diem	4		0.5418		
				4.3344	3.87	8.2044
40	extrahunt	8		0.11304		
50	*			6.28		
				6.39304		-0.99398
0.1	*					
30	*				5.5	2.635668
40	lavantur	8		0.5652		
50	saepius	7		0.5338		
50	calida	6		0.5024		
				1.6014	3.14	4.7414
0.1	,	1	2	0.3454		
30	ut	2		0.3768		
30	aput	4		0.4396		
30	quos	4		0.4396		
30	hiems	5		0.471		
				2.0724	3.14	5.2124
40	occupat	7		0.5338		
50				0		
0	.	1		0.3454		
				0.8792		0.8792
30	Lauti	5	3	0.471		

30	cibum	5		0.471		
				0.942	3.14	4.082
40	capiunt	7		0.5338		
50	*					
0.1	:	1		0.3454		
50	separatae	9		0.5966		
50	singulis	8		0.5652		
50	sedes	5		0.471		
50	et	2		0.3768		
50	sua	3		0.4082		
50	cuique	6		0.5024		
50	mensa	5		0.471		
0	.	1		0.3454		
				4.6158	3.14	7.7558
	Tum	3	4	0.6123		
	ad	2		0.5652		
	negotia	7		0.8007		
	nec	3		0.6123		
	minus	5		0.7065		
	saepe	5		0.7065		
	ad	2		0.5652		
	convivia	8		0.8478		
				5.4165	4.71	10.1265
40	procedunt	9		0.11932		
50	*			6.28		
				6.39932		0.535083
0.1	*					
30	*				5.5	2.317784
40	armati	6		0.5024		
50	*			0		
0	.	1		0.3454		
				0.8478		0.8478
30	Diem	4	5	0.4396		
30	noctemque	9		0.5966		
				1.0362	3.14	4.1762

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40	continuare	10		0.1256		
50	*			6.28		
				6.4056		-0.2176
0.1	*					
30	*				5.5	3.456425
40	potado	6		0.5024		
50	nulli	5		0.471		
50	probrum	7		0.5338		
0	.	1		0.3454		
				1.8526	3.14	4.9926
30	Crebrae	7	6	0.5338		
30	,	1		0.3454		
30	ut	2		0.3768		
30	inter	5		0.471		
30	vionlentos	10		0.628		
30	,	1		0.3454		
30	rixae	5		0.471		
30	raro	4		0.4396		
30	conviciis	8		0.5652		
30	saepius	7		0.5338		
30	caede	5		0.471		
30	et	2		0.3768		
30	vulneribus	10		0.628		
				6.1858	3.14	9.3258
40	transiguntur	12		0.6908		
50	*			0		
	.	1		0.3454		
				1.0362		1.0362
30(0,1)	Sed	3	7	0.5031		
30	et	2		0.4644		
30(60)	de	3		0.4644		
				1.4319	3.87	5.3019
40	reconciliandis	13		0.8901		
60	in	2		0.4644		
60	vicem	5		0.5805		
60	inimicis	8		0.6966		
				2.6316	3.87	6.5016

0.1	et	2		0.3768		
30	*			5.5		
				5.8768		3.574214
40	iungendis	9		0.5966		
50	affinitatibus	12		0.6908		
				1.2874	3.14	4.4274
	et	2		0.66		
30	*			5.5		
				6.16		1.433203
40	ascisendis	10		0.628		
50	prinipibus	9		0.5966		
	,	1		0.3454		
	de	2		0.3768		
	pace	4		0.4396		
	denique	7		0.5338		
	ac	2		0.3768		
	bello	5		0.471		
	plerumque	9		0.5966		
				4.3646	3.14	7.5046
60	in	2		0.4644		
	conviviis	9		0.7353		
				1.1997	3.87	5.0697
30	*				5.5	-1.70873
40	constutant	10		0.628		
50	*					
0.1	,	1		0.3454		
50	tamquam	7		0.5338		
50	nullo	5		0.471		
50	magis	5		0.471		
50	tempore	7		0.5338		
				2.983	3.14	6.123
0.1	aut	3		0.5031		
60	ad	2		0.4644		
60	simplices	9		0.7353		

60	cogitationes	12		0.8514		
				2.5542	3.87	6.4242
40	pateat	6		0.5024		
50	animus	6		0.5024		
	aut	3		0.4082		
	ad	2		0.3768		
	magnas	6		0.5024		
				2.2922	3.14	5.4322
30	*				5.5	-4.05394
40	incalescat	9		0.5966		
50	*			0		
0	.	1		0.3454		
				0.942		0.942
30	Gens	4	8	0.4396		
30	non	3		0.4082		
30	astuta	6		0.5024		
30	nec	3		0.4082		
30	callida	7		0.5338		
				2.2922	3.14	5.4322
40	aperit	6		0.5024		
50	adhuc	5		0.471		
50	secreta	6		0.5024		
50	pectoris	8		0.5652		
50	licentia	8		0.5652		
50	ioci	4		0.4396		
				3.0458	3.14	6.1858
0.1	;	1	9	0.3454		
30	ergo	4		0.4396		
				0.785	3.14	3.925
40	detecta	7		0.5338		
50	et	2		0.3768		
50	nuda	4		0.4396		
50	omnium	6		0.5024		
50	mens	4		0.4396		
0	.	1		0.3454		
				2.6376	3.14	5.7776

30	Postera	7	10	0.5338		
30	die	3		0.4082		
				0.942	3.14	4.082
40	retractatur	12		0.13816		
50	*			6.28		
				6.41816		-33.8288
0.1	,	1	11	0.3454		
30	et	2		0.3768		
30	salva	5		0.471		
30	utriusque	9		0.5966		
30	temporis	8		0.5652		
30	ratio	5		0.471		
				2.826	3.14	5.966
40	est	3		0.08164		
50	*			6.28		
				6.36164		-28.9206
0.1	:	1	12	0.3454		
30	*			3.14		
				3.4854		1.04286
40	deliberant	10		0.1256		
50	*			6.28		
				6.4056		-22.0362
0.1	,		13			
30	dum	3		0.4082	3.14	3.5482
40	ingere	7		0.10676		
50	*			6.28		
				6.38676		-17.6442
0.1	*					
30	*				5.5	3.616333
40	nesciunt	8		0.11304		
50	*			6.28		
				6.39304		-10.8806
0.1	,		14			
30	*				5.5	1.271125

40	constituunt	10		0.1256		
50	*			6.28		
				6.4056		-1.76301
0.1	*					
30	dum	3		0.4082	3.14	3.5482
40	errare	6		0.10048		
50	*			6.28		
				6.38048		3.559157
30	non	3		0.4082	3.14	3.5482
40	possunt	7		0.5338		
50	*			0		
0	.	1		0.3454		
				0.8792	0	0.8792

Table A2*Intervals and Radians of Alpha and Beta Variables*

<i>Case</i>	<i>Interval</i>	<i>Alpha</i>	<i>Beta</i>
1	1	8.2044	-0.9940
2	1	2.6356	4.7414
1	2	5.2124	0.8792
1	3	4.0820	7.7558
1	4	10.1265	0.5358
2	4	2.3178	0.8478
1	5	4.1762	-0.2176
2	5	3.4564	4.9926
1	6	9.3258	1.0362
1	7	5.3019	6.5016
2	7	3.5742	4.8042
3	7	1.43323	7.5046
4	7	1.43323	5.0697
5	7	-1.7087	6.1230
6	7	-1.7087	6.4242
7	7	-1.7087	5.4322
8	7	-4.0539	0.9420
1	8	5.4322	6.1858
1	9	3.9250	5.7776
1	1	4.0820	-33.8288
1	11	5.9660	-28.9206
1	12	1.0429	-22.0362
1	13	3.5482	-17.6442
2	13	3.6163	-10.8860
1	14	1.2711	-1.76301
2	14	3.5482	3.55916
3	14	3.5482	0.8792

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Table A3
Transformation of Beta Variables

X	Y	Nod	Value	Transformation	Literal English
0	1	2	4.741399	Lavantur saepius calida	Washed several times with warm
1	0	8	4.9926	Potado nulli probrum	Drink with no disgrace
1	1	T ₁	9.734	Relaxatio	Relaxation
2	0	10	6.5016	Reconciliandis in vicem inimics	The reconciliation of enemies
3	0	11	4.8042	Iungendis affiniatibus	Forming alliances
3	1	T ₂	11.3058	Retrahitur virtutis	Concentration of Power
1	1	T ₁	9.734	Relaxatio	Relaxation
3	1	T ₂	11.3058	Retrahitur virtutis	Concentration of Power
3	2	T ₃	21.0398	Virtus	Manhood
4	0	12	7.5046	Asciendis principibus. de pace	Asciende chiefs. finally even on
				denique ac bello plerumque	peace and war. for the most part
5	0	13	5.0697	in conviviis	banquets
5	1	T ₄	12.5743	Agilitas	Agility
3	2	T ₃	21.0398	Virtus	Manhood
5	1	T ₄	12.5743	Agilitas	Agility
5	2	T ₅	33.6141	Fortitudo	Strength
6	0	14	6.1230	Consultant. tamquam	Consultant. as at no time
				nullo magis tempore	
7	0	15	6.4242	Aut ad simplices cogitationes	Or the simple devices of thought
7	1	T ₆	12.5472	Temper	Temper
5	2	T ₅	33.6141	Fortitudo	Strength
7	1	T ₆	12.5472	Temper	Temper
7	2	T ₇	46.1613	Ludicio	Judgement
8	0	D	0		
9	0	16	5.4322	Pateat animus aut magnas	Or large open mind
9	1	T ₈	5.4322	Liberalitas	Liberality
7	2	T ₇	46.1613	Ludicio	Judgement
9	1	T ₈	5.4322	Liberalitas	Liberality
9	2	T ₉	51.593299	Tolerantia	Tolerance
10	0	D	0		
11	0	4	7.7558	Separate singulis sedes et sua	A separate seat and table
				cuique mensa	of his own

11	1	T ₁₀	7.7558	Adgnitio	Recognition
9	2	T ₉	51.593299	Tolerantia	Tolerance
11	1	T ₁₀	7.7558	Nobilitas	Nobility
11	2	T ₁₁	59.3490	Fiducia	Trust
12	0	D	0		
13	0	18	6.1858	Aperit adhuc secreta	Reveals the secretes of his
				pectoris licentia ioci	heart still joke licence
13	1	T ₁₂	6.1858	Ingenuitas	Ingenuous
11	2	T ₁₁	59.3490	Fiducia	Trust
13	1	T ₁₂	6.1858	Ingenuitas	Ingenuous
13	2	T ₁₃	65.534899	Inceptio	Resourceful
14	0	D	0		
15	0	19	5.7776	Detecta et nuda omnium mens	Exposed and vulnerable to the mind
15	1	T ₁₄	5.7776	Sensibilis	Sensibility
13	2	T ₁₃	65.534899	Inceptio	Resourceful
15	1	T ₁₄	5.7776	Sensibilis	Sensibility
15	2	T ₁₅	71.312499	Alacritas	Alertness
18	1	D	0		
18	2	26	3.559157	Errare(non+possunt+Y)	Are mistaken+(non+can+Y)
17	2	T ₁₆	3.559157	Ambiguitas	Ambiguity
15	2	T ₁₅	71.312499	Alacritas	Alertness
17	2	T ₁₆	3.559157	Ambiguitas	Ambiguity
16	3	T ₁₇	74.871669	Dubium	Doubt
18	3	D	0		
18	4	1	-0.99398	Extrahunt(statim e somno. quem plerumque in diem)+ (lavantur saepius calida)	Are taken out (at once moved from his sleep. and the day of and mostly) + (they are washed frequently in warm water)
17	4	T ₁₆	-0.99398	Munditia	Cleanness
18	5	D	0		
18	6	3	0.8792	Occupat(Y)	Possession
17	6	T ₁₇	0.8792	Dominor	Domination
17	4	T ₁₆	-0.99398	Munditia	Cleanness
17	6	T ₁₇	0.8792	Dominor	Domination
16	6	T ₁₈	-0.11478	Mos	Custom
17	8	D	0		
16	8	9	1.0362	Transiguntur(Y)	Transact(Y)
16	7	T ₁₉	1.0362	Negotium	Transaction

16	6	T_{18}	-0.11478	<i>Mos</i>	<i>Custom</i>
16	7	T_{19}	1.0362	<i>Negotium</i>	<i>Transaction</i>
16	6	T_{20}	0.92142	Ratio	Tactics
15	8	D	0		
14	8	5	0.535083	Procedunt(Tum ad negotia nec minus saepe ad convivia+armati+(Y)	They go (armed with both in order to business. or no less often to their festal+(Y)
15	7	T_{21}	0.535083	Praeparationi	Preparedness
16	6	T_{20}	0.92142	<i>Ratio</i>	<i>Tactics</i>
15	7	T_{21}	0.535083	<i>Praeparatio</i>	<i>Preparedness</i>
15	6	T_{22}	1.456503	Tutela	Protection
14	8	D	0		
13	8	6	0.8478	Armati+(Y)	Armed+(Y)
13	7	T_{23}	0.8478	Proviso	Reservation
15	6	T_{22}	1.456503	<i>Tutela</i>	<i>Protection</i>
13	7	T_{23}	0.8478	<i>Proviso</i>	<i>Reservation</i>
13	6	T_{24}	2.304303	Denotatio	Marking
12	8	D	0		
11	8	7	-0.2176	Continuare(diem noctemque +potado nulli probrum)	Continue (day and night+ drink no disgrace)
11	7	T_{25}	-0.2176	Licentia	Unconstraint
13	6	T_{24}	2.304303	<i>Denotatio</i>	<i>Marking</i>
11	7	T_{25}	-0.2176	<i>Licentia</i>	<i>Unconstraint</i>
11	6	T_{26}	2.086702	Transcendentia	Transcendence
10	8	D	0		
9	8	17	0.942	Incalescat+(Y)	Hot+(Y)
9	7	T_{27}	0.942	Incitatio	Incitement
11	6	T_{26}	2.086702	<i>Transcendentia</i>	<i>Transcendence</i>
9	7	T_{27}	0.942	<i>Incitatio</i>	<i>Incitement</i>
9	6	T_{28}	3.028703	Genius	Genius
8	8	27	0.8792	Possunt+(Y)	can
7	8	25	-1.76301	Constituunt(dum +errare(non+possunt+(Y)	Make (while+ err(not+can+(y)
7	7	T_{29}	-0.88381	Non-falsus	Veritas
9	6	T_{28}	3.028703	<i>Genius</i>	<i>Genius</i>
7	7	T_{29}	-0.88381	<i>Non-falsus</i>	<i>Veritas</i>
7	6	T_{30}	2.144893	Credibilis	Credibility

16	3	T_{17}	74.871669	<i>Dubium</i>	<i>Doubt</i>
7	6	T_{30}	2.144893	<i>Credibilis</i>	<i>Credibility</i>
7	5	T_{31}	77.012272	Provocatio	Challenge
6	8	D	0		
5	8	24	-10.8806	Nesciunt(dum+constituunt (dum+errare(non+possunt+(Y))	They do not know (as long as+make up(as long as+ err (can+not+(y)
5	7	T_{32}	-10.8806	Honestas	Honesty
4	8	D	0		
3	8	23	-17.6442	Fingere(dum+nesciunt(dum +constituunt(dum +errare(non+possunt+(Y))	lie(they do not know (as long as+make up (as long as+ err (can+not+(y)
3	7	T_{33}	-17.6442	Incorruptus	Incorruptible
5	7	T_{32}	-10.8806	<i>Honestas</i>	<i>Honesty</i>
3	7	T_{33}	-17.6442	<i>Incorruptus</i>	<i>Incorruptible</i>
3	6	T_{34}	-28.5248	Rectum	Uprightness
0	7	D	0		
0	6	22	-22.0362	Deliberant(dum+figere(dum +nesciunt(dum+constituunt (dum+errare(non+possunt+(Y))	There is a debate (as long as+to imagine (as long as+do not know (+ constitute a while (when+err+may+not (Y))
1	6	T_{35}	-22.0362	Colloquium	Colloquium
3	6	T_{34}	-28.5248	<i>Rectum</i>	<i>Uprightness</i>
0	6	T_{35}	-22.0362	<i>Colloquium</i>	<i>Colloquium</i>
2	5	T_{36}	-50.5610	Conscientia	Conscience
0	4	D	0		
0	3	21	-28.9206	Est(et salva utriusque temporis ratio+deliberant(dum+figere (dum+nesciunt(dum +constituunt(dum+errare (non+possunt+(Y))	There is a (no account of time. and without prejudice to the +of both deliberate (as long as + to imagine (as long as + do not know(as long as + make up (as long as + err (non+may+(Y))
1	3	T_{37}	-28.9206	<i>Equilibrium</i>	<i>Equilibrium</i>
2	5	T_{36}	-50.5610	<i>Conscientia</i>	<i>Conscience</i>
1	3	T_{37}	-28.9206	<i>Equilibrium</i>	<i>Equilibrium</i>
2	4	T_{38}	-79.4816	Concentio	Consensus
0	3	D	0		
0	2	20	-33.8288	Retractatur(est(et salva utriusque temporis ratio+ deliberant(dum+figere(dum+ nesciunt(dum+constituunt(dum +errare(non+possunt+(Y))	Is called for(for it(and without prejudice to the time ratio+of both deliberate(as long as+to imagine(as long as+do not know+constitute a while (when+ err (may +non+(Y))

1	2	T ₃₉	-33.8288	Retractus	Retrial
2	4	T ₃₈	-79.4816	Concentio	Consensus
1	2	T ₃₉	-33.8288	Retractus	Retrial
2	3	T ₄₀	-113.3104	Iustum	Justice
7	5	T ₃₁	77.012272	Provocatio	Challenge
2	3	T ₄₀	-113.3104	Iustum	Justice
3	3	T ₄₁	-36.29813	Particio	Participation

Table A4*Transformation of the Alpha Variables*

Var	Rad	Var	Rad	Var	Rad	Var	Rad	Var	Rad
D	0	D	0	T17	52.3729	D	0	T35	60.4158
3	5.2124	19	3.9250	T18	7.0896	25	1.2711	T36	8.2044
T1	5.2124	T10	3.9250	T19	59.4625	T28	1.2711	T37	68.6220
D	0	T9	31.2353	D	0	T27	68.3248	D	0
4	4.0820	T10	3.9250	2	2.6357	T28	1.2711	5	10.1265
T2	4.0820	T11	35.1603	T20	2.6357	T29	69.5959	T38	10.1265
T1	5.2124	D	0	T19	59.4625	14	-1.7087	T37	68.6220
T2	4.0820	20	4.0820	T20	2.6357	15	-1.7087	T38	10.1265
T3	9.2944	T12	4.0820	T21	62.0982	T30	-3.4175	T39	78.7467
7	4.1762	T11	35.1603	D	0	D	0	D	0
8	3.4564	T12	4.0820	6	2.3178	16	-1.7087	9	9.3258
T4	7.6326	T13	39.2434	T22	2.3178	T31	-1.7087	T40	9.3258
T3	9.2944	D	0	T21	62.0982	T30	-3.4175	T39	78.7467
T4	7.6326	21	5.9660	T22	2.3178	T31	-1.7087	T40	9.3258
T5	16.9270	T14	5.9660	T23	64.4160	T32	-5.1262	T41	88.0725
10	5.3019	T13	39.2434	12	1.4332	D	0		
11	3.5742	T14	5.9660	13	1.4332	17	-4.0539		
T6	8.8761	T15	45.2083	T24	2.8664	T33	-4.0539		
T5	16.9270	23	3.5482	T23	64.4160	T32	-5.1262		
T6	8.8761	24	3.6163	T24	2.8664	T33	-4.0539		
T7	25.8031	T16	7.1645	T25	67.2820	T34	-9.1801		
D	0	T15	45.2083	D	0	T29	69.5976		
18	5.4322	T16	7.1645	22	1.0429	T34	-9.1801		
T8	5.4322	T17	52.3729	T26	1.0429	T35	60.4158		
T7	25.8031	26	3.5448	T25	67.2837	D	0		
T8	5.4322	27	3.5448	T26	1.0429	1	8.2044		
T9	31.2353	T18	7.0896	T27	68.3248	T36	8.2044		

Table A5*Extraction of Termini from the O-mesh*

<i>Mesh</i>	<i>Mesh</i>	<i>A-Component</i>	<i>O-Component</i>	<i>English</i>	<i>Fusion</i>
<i>X</i>	<i>Y</i>	<i>Pendulum</i>	<i>Destination</i>	<i>Extraction</i>	<i>q-Value</i>
1	1	T ₁ : D → 3	T _{O19}	Transaction	5.2124
3	1	T ₂ : D → 4	T _{O10}	Recognition	4.0820
3	2	T ₃ : T _{A2} → T _{A1}	T _{O3}	Manhood	9.2944
5	1	T ₄ : 7 → 8	T _{O1}	Relaxation	7.632625
5	2	T ₅ : T _{A4} → T _{A3}	T _{O5}	Strength	16.927025
7	1	T ₆ : 10 → 11	T _{O2}	Power Concentration	8.876114
7	2	T ₇ : T _{A6} → T _{A5}	T _{O7}	Judgement	25.803139
9	1	T ₈ : D → 18	T _{O12}	Ingenuous	5.4322
9	2	T ₉ : T _{A8} → T _{A7}	T _{O9}	Tolerance	31.235339
11	1	T ₁₀ : D → 19	T _{O14}	Sensibility	3.925
11	2	T ₁₁ : T _{A10} → T _{A9}	T _{O11}	Trust	35.160339
13	1	T ₁₂ : D → 20	T _{O41}	Participation	4.082
13	2	T ₁₃ : T _{A12} → T _{A11}	T _{O13}	Resourceful	39.24339
15	1	T ₁₄ : D → 21	T _{O39}	Retrail	5.9660
15	2	T ₁₅ : T _{A14} → T _{A13}	T _{O15}	Alertness	45.208339
18	1	T ₁₆ : 23 → 24	T _{O34}	Uprightness	7.164533
16	4	T ₁₇ : T _{A16} → T _{A15}	T _{O17}	Doubt	52.372872
17	4	T ₁₈ : 26 → 27	T _{O31}	Challenge	7.08964
16	4	T ₁₉ : T _{A18} → T _{A17}	T _{O17}	Doubt	59.462512
17	6	T ₂₀ : D → 2	T _{O1}	Relaxation	2.635668
16	6	T ₂₁ : T _{A20} → T _{A19}	T _{O18}	Custom	62.09818
16	7	T ₂₂ : D → 6	T _{O25}	Unconstraint	2.317784
15	7	T ₂₃ : T _{A22} → T _{A21}	T _{O21}	Preparedness	64.415964
14	7	T ₂₄ : 12 → 13	T _{O4}	Agility	2.866406
14	6	T ₂₅ : T _{A24} → T _{A23}	T _{O23}	Reservation	67.282004
12	7	T ₂₆ : D → 22	T _{O37}	Equilibrium	1.04286
12	6	T ₂₇ : T _{A26} → T _{A25}	T _{O25}	Unconstraint	68.324864
10	7	T ₂₈ : D → 25	T _{O31}	Challenge	1.271125
10	6	T ₂₉ : T _{A28} → T _{A27}	T _{O27}	Incitement	69.595989
8	7	T ₃₀ : 14 → 15	T _{O6}	Temper	-3.41746
9	6	T ₃₁ : D → 16	T _{O8}	Liberality	-1.70873
6	6	T ₃₂ : T _{A31} → T _{A30}	T _{O29}	Honesty	-5.12619
4	7	T ₃₃ : D → 17	T _{O29}	Veritas	/4.06394
4	6	T ₃₄ : T _{A33} → T _{A32}	T _{O32}	Honesty	-9.18013
4	5	T ₃₅ : T _{A34} → T _{A29}	T _{O30}	Credibility	60.415859
2	7	T ₃₆ : D → 1	T _{O18}	Custom	8.2044
3	5	T ₃₇ : T _{A36} → T _{A35}	T _{O35}	Colloquium	68.620259
1	5	T ₃₈ : D → 5	T _{O23}	Incorruptible	10.1265
2	5	T ₃₉ : T _{A38} → T _{A37}	T _{O37}	Equilibrium	78.748455
1	3	T ₄₀ : D → 9	T _{O21}	Preparedness	9.325799
2	3	T ₄₁ : T _{A40} → T _{A39}	T _{O39}	Retrial	88.072558